

**VIA EMAIL**

February 9, 2012  
File No. 04.0029307.00



Mr. Dana Clement  
Superintendent  
Allentown Wastewater Treatment Facility  
35 Canal Street  
Allentown, New Hampshire 03275

Re: Calculated Stream B Concentrations  
Merrimack Station  
Public Service of New Hampshire (PSNH)  
Bow, New Hampshire

380 Harvey Road  
Manchester  
New Hampshire  
03103-3347  
603-623-3600  
FAX 603-624-9463  
www.gza.com

Dear Dana:

As presented in PSNH's Industrial Wastewater Discharge Permit Application, submitted in May 2011, the facility is equipped with a technologically-advanced wastewater treatment system which includes post-treatment systems that can be used to further reduce the volume of the treated waste stream (i.e., referred to as "Stream A"). These post-treatment systems are anticipated to become operational the week of February 13, 2012. With these post-treatment systems, PSNH will have the ability to reduce the volume of wastewater while maintaining pollutant concentrations that we believe to be compatible with your treatment system. The estimated volume of concentrated wastewater (Stream B) to be transported and disposed is approximately 7,000 to 10,000 gallons per day. We respectfully request that Allentown Wastewater Treatment Facility consider accepting the Stream B.

The attached **Table 1** summarizes the calculated Stream B concentrations based on recent sampling events and the anticipated degree of volume reduction.

**ANALYTICAL DISCUSSION**

Flue Gas Desulfurization (FGD) wastewater requires specialized analytical techniques to overcome matrix interference for certain analysis of trace metals. To assist you in evaluating this issue further, we offer an excerpt below from the United States Environmental Protection Agency's (EPA) web site and a link to their draft Standard Operating Procedure (SOP) for trace metals analysis of FGD wastewater that contains further guidance.

**LABORATORY ANALYSIS OF FGD WASTEWATER**

Wastewater from FGD systems can contain constituents known to cause matrix interferences. EPA has observed that, during inductively coupled plasma – mass spectrometry (ICP-MS) analysis of FGD wastewater, certain elements commonly present in the wastewater may cause polyatomic interferences that bias the detection and/or quantization of certain elements of interest. These potential interferences may become significant when measuring trace elements at concentrations in the low parts-per-billion range.



As part of a recent sampling effort for the steam electric power generating effluent guidelines rulemaking, EPA developed an SOP that was used in conjunction with EPA Method 200.8 to conduct ICP-MS analyses of FGD wastewater. The SOP describes critical technical and quality assurance procedures that were implemented to mitigate anticipated interferences and generate reliable data for FGD wastewater. EPA regulations at 40 CFR 136.6 already allow the analytical community flexibility to modify approved methods to lower the costs of measurements, overcome matrix interferences, or otherwise improve the analysis. The draft SOP developed for FGD wastewater takes a proactive approach toward looking for and taking steps to mitigate matrix interferences, including using specialized interference check solutions (i.e., a synthetic FGD wastewater matrix). EPA's draft SOP is being made available to laboratories contemplating ICP-MS analysis of FGD wastewater, either for adoption as currently written or to serve as a framework for developing their own laboratory-specific SOPs. For further information, see:

Standard Operating Procedure: Inductively Coupled Plasma/Mass Spectrometry for Trace Element Analysis in Flue Gas Desulfurization Wastewaters (30 pp, 174K) [http://water.epa.gov/scitech/wastetech/guide/upload/steam\\_draft\\_sop.pdf](http://water.epa.gov/scitech/wastetech/guide/upload/steam_draft_sop.pdf), EPA May 2011.

Considering that specialized analytical techniques are necessary to overcome matrix interference for certain analysis of trace metals in FGD wastewater, we recommend any analysis on FGD wastewater be conducted in accordance with the EPA draft SOP for trace metals analysis of FGD wastewater.

During the course of performing your evaluation process, GZA GeoEnvironmental, Inc. and PSNH will be available to provide additional information and technical support. We respectfully ask that you respond by February 15, 2012 so that we may continue to evaluate our management options.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

A handwritten signature in black ink that reads "Ronald A. Breton". The signature is written in a cursive, flowing style.

Ronald A. Breton, P.E.  
Principal

RAB:mm

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cc: Mr. George Carlson, P.E., NHDES

Attachment: Table

## TABLE

**TABLE 1**  
**CALCULATED B STREAM CONCENTRATIONS**  
Public Service of New Hampshire - Merrimack Station

PARAMETER	CALCULATED B STREAM CONCENTRATIONS (mg/L)
Aluminum	0.299
Ammonia	6.69
Antimony	0.0038
Arsenic	0.036
Barium	2.2
Beryllium	0.0038
BOD	< 44
Cadmium	0.0015
Chloride	80,000
Chromium (T)	< 0.0036
COD	945
Cobalt	0.05
Copper	< 0.0036
Cyanide (T)	0.15
Fluoride	72.73
Iron	< 0.364
Lead	< 0.0015
Manganese	2.13
Mercury	0.000076
Molybdenum	1.02
Nitrate	727
Nickel	0.058
O&G	< 36
pH	7.3
Selenium	0.538
Silver	< 0.00073
TDS	152,727
Thallium	0.048
Tin	< 1.18
Titanium	< 0.12
Vanadium	< 0.26
Zinc	< 0.007
VOC EPA 624	ND
PCBs	ND

NOTE:

1. These values were estimated using recent analytical results and calculating the resulting concentrations after volume reduction and are subject to change.
2. ND means not detected. These parameters are not expected to be present in the B Stream.